Creatinine screening:

If a patient is on dialysis, creatinine screening is not useful. **Do not screen**. **Consult radiologist**.

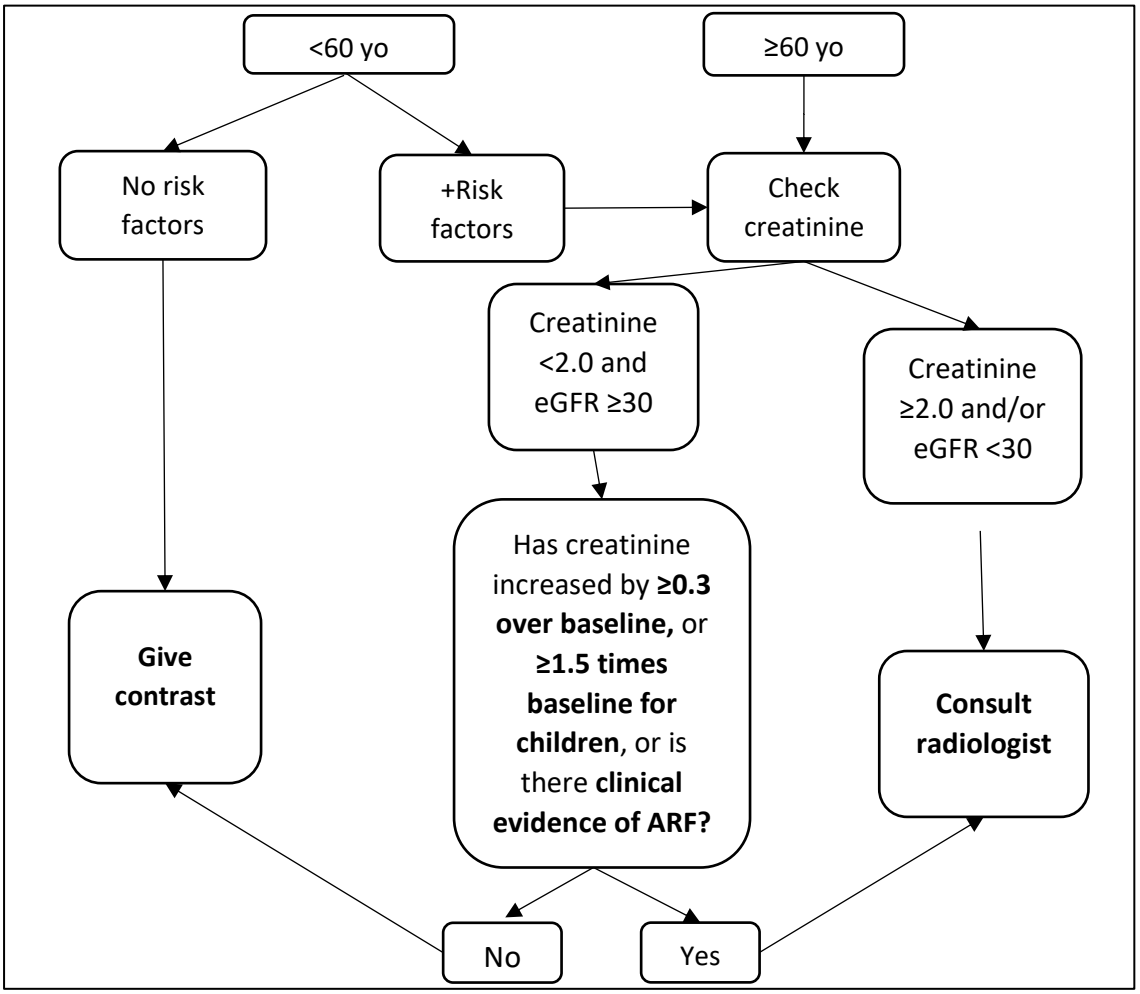
If the patient is known to have acute renal failure, creatinine screening is not reliable, and contrast should be avoided unless clinically necessary based on risk/benefit assessment. If the patient is recovering from recent acute renal failure, **check creatinine and consult radiologist**.

Inpatients need a serum creatinine within the last 2 days. If not, check creatinine.
ER patients need current creatinine.
Outpatients ≥60 years old, or of any age with at least one risk factor require serum creatinine within the last 30 days, or even more recently in the setting of **acute renal failure**.

Risk factors:

1. Renal disease, renal transplantation, nephrectomy, prior serum creatinine >1.2 mg/dL.
2. Undergoing chemotherapy.
3. Hypertension.
4. Diabetes.
5. Metformin therapy.
6. Acute illness (i.e., inpatients and ER patients, though this can be foregone in the setting of acute medical necessity.)

Outpatients <60 years old without risk factors do not require baseline serum creatinine.



Adapted from ACR Contrast Manual. https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf
Revised 10/30/2019.

CT Contrast Protocol:

The purpose of creatinine screening prior to iodinated contrast administration is to identify patients at risk for **contrast-induced nephropathy**.

All patients with creatinine <2.0 mg/dL and eGFR ≥30 are eligible to receive intravenous contrast. Patients with creatinine ≥2.0 mg/dL or eGFR <30 require discussion with the radiologist. Alternatives should be discussed with the patient and ordering physician, and documented consent should be considered.

Identification of **acute renal failure** is the primary goal of creatinine screening. If the patient has known acute renal failure, further creatinine screening is not necessary, and the situation should be discussed with a radiologist. If there are risk factors for acute renal failure which is not yet known, such as severe dehydration, or significantly decreased urine output for 6 hours, creatinine should be screened and the situation discussed with a radiologist. In all patients in whom creatinine is assessed, the current value should be compared with the most recent prior value to detect potential trends. If this value has increased by **≥0.3 mg/dL**, or **≥1.5 times baseline for children**, the situation should be discussed with a radiologist. Alternative tests, and hydration before or after the procedure should be considered.

Stage 4 or 5 CKD (eGFR <30) is the other screening target.

Algorithm:

Any patient on dialysis, or with known acute renal failure: **Do not screen**. **Consult radiologist**.

Any pregnant patient: **Consult radiologist.**

Inpatients need a serum creatinine within the last two days. If not, drawn new creatinine.

ER patients need current creatinine. If not already drawn by the ER, drawn new creatinine.

Outpatients <60 years old without risk factors: **give contrast**.

Outpatients ≥60 years old, or of any age with a risk factor or acute illness: drawn new creatinine and eGFR.

Creatinine ≥2.0 and/or eGFR <30: **consult radiologist**.

Creatinine <2.0 and eGFR ≥30, and creatinine has increased by **≥0.3 over baseline,** or **≥1.5 times baseline for children: consult radiologist**.

Creatinine <2.0 and eGFR ≥30, and creatinine has **not** increased by **≥0.3,** or **≥1.5 times baseline for children: give contrast**.

FOR RADIOLOGISTS:
In patients on dialysis, creatinine screening is not useful. Patients who are **anuric** without a functioning transplant may have contrast. Patients who are **oliguric** remain at risk for contrast-induced nephropathy and loss of remaining renal function and urine output. Contrast administration can be performed based on risk/benefit assessment. In oliguric patients receiving contrast, follow up dialysis should be arranged by the nephrology service.

Adapted from ACR Contrast Manual. https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf
Revised 10/30/2019.

MR Contrast Protocol:

The purpose of creatinine screening prior to gadolinium contrast administration is to identify patients at risk for **nephrogenic systemic fibrosis**.

Risk factors:
1. Stage 4 or 5 CKD (eGFR <30)
2. Acute renal failure.
3. Hemodialysis, recent vascular surgery, systemic inflammation/sepsis, metabolic acidosis, immunosuppression, and hepatorenal syndrome have been variably associated with increased risk in patients with concurrent renal failure.

Algorithm MR:

Any patient on dialysis, or with known acute renal failure: **Do not screen**. **Consult radiologist**.

Any pregnant patient: **Consult radiologist.**

Inpatients need a serum creatinine within the last two days. If not, drawn new creatinine.

ER patients need current creatinine. If not already drawn by the ER, drawn new creatinine.

Outpatients <60 years old without risk factors: **give contrast**.

Patient ≥60 years old, or of any age with a risk factor or acute illness: check creatinine and eGFR.

Creatinine ≥2.0 and/or eGFR <30: **consult radiologist**. Type I agents contraindicated.

Creatinine <2.0 and eGFR ≥30, and creatinine has increased by **≥0.3 over baseline,** or **≥1.5 times baseline for children: consult radiologist**. Type I agents contraindicated.

Creatinine <2.0 and eGFR ≥30, and creatinine has **not** increased by **≥0.3,** or **≥1.5 times baseline for children: give contrast**.

FOR RADIOLOGISTS:

If patient eGFR <30, or on dialysis, or in acute renal failure:

Group 1 agents (Magnevist, Omniscan and OptiMARK) are **contraindicated**.

Group 3 agents (Eovist) can be administered in patients without hepatic failure, based on risk benefit/assessment.

Group 2 agents (Gadavist, Dotarem, ProHance or MultiHance) can be considered in minimal effective dose based on risk/benefit assessment.

In patients on hemodialysis, dialysis should be arranged as soon as possible after administration.

Adapted from ACR Contrast Manual. https://www.acr.org/-/media/ACR/Files/Clinical-Resources/Contrast_Media.pdf
Revised 10/30/2019.